

Application Serial No.: 10/780,932

REMARKS

The Examiner is thanked for the thorough examination of this application. The Office Action mailed December 30, 2005 has continued to reject all claims. For at least the reasons discussed below, Applicant requests reconsideration and withdrawal of the rejections.

Present Status of Application

Claims 1-7 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over the acknowledge prior art of FIGs. 1-2E in view of Ishii et al. (US 6,930,000).

In this paper, new claims 14-19 are added. Supported for the new claims can be found in the originally filed application, including FIG. 3. Accordingly, no new matter is entered.

Rejections Under 35 U.S.C. 103(a)

Claims 1-7 presently stand rejected under 35 U.S.C. 103(a) as being unpatentable over the acknowledge prior art of FIGs. 1-2E in view of Ishii et al.(US 6,930,000). For at least the reasons that follow, Applicant respectfully disagrees.

Claim 1 recites:

1. An interconnect structure, comprising:
a substrate;
a plurality of first metal lines disposed on the substrate;
a first insulating layer disposed on the substrate, covering the plurality of first metal lines;
a plurality of second metal lines disposed on the first insulating layer;
a second insulating layer covering the plurality of second metal lines;
a plurality of ITO (indium tin oxide) wirings, each ITO wiring electrically connecting one of the plurality of first metal lines and one of the second metal lines respectively, and
a passivation structure disposed on the second insulating layer, having surrounding walls to isolate each of the ITO wirings.

(Emphasis Added). Claim 1 patently defines over the cited art for at least the reason that the cited art

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fails to disclose the features emphasized above.

As is clearly and expressly recited in claim 1, claim 1 defines (among other features) a passivation structure disposed on the second insulating layer, having surrounding walls to isolate each of the ITO wirings.

The Office Action admitted that the acknowledged prior art does not disclose the claimed passivation structure having surrounding walls. Instead, the Office Action alleged that Ishii teaches a passivation structure having surrounding walls. The Office Action then alleged that it would have been obvious to one of ordinary skill in the art at the time when the invention was made to apply the surrounding walls of Ishii to sufficiently obviate the occurrence of the electrolytic corrosion. Applicant respectfully disagrees.

First, Applicant respectfully submits that, even if the cited art was properly combined, the combination would produce an inoperative combination. Referring to Col 9, lines 57-63, and Col 10, lines 14-24, Ishii teaches:

In other words, *the conductive oxide film ECO is formed on the protective film PSV in the periphery of the hole, extends to respective side walls of the protective film PSV and the insulation film GI in the hole and reaches the upper surface of the gate signal line GL.* However, the conductive oxide film ECO is not formed on the center portion of the gate signal line GL which is exposed through the hole.

...
That is, the bump BUP has the region which is directly (in other words, without by way of the conductive oxide film ECO) connected to the conductive material which constitutes the gate signal line GL at the terminal portion GTM and hence, the connection resistance can be drastically reduced. Further, *the conductive oxide ECO which is formed in the periphery of the terminal portion GTM can sufficiently obviate the occurrence of the electrolytic corrosion at the terminal portion GTM even when the conductive oxide ECO is formed without covering the center of the terminal portion.*

It is clear that the conductive oxide ECO formed in the periphery of the terminal portion GTM can sufficiently obviate the occurrence of the electrolytic corrosion at the terminal portion in Ishii.

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Consequently, when applying the surrounding walls of Ishii to the acknowledged prior art for sufficiently obviating the occurrence of the electrolytic corrosion, the conductive oxide ECO is required.

Further, the conductive oxide film ECO is formed on the protective film PSV in the periphery of the hole, extending to respective side walls of the protective film PSV and the insulation film GI in the hole and reaching the upper surface of the gate signal line GL. Thus, when the references are combined, the conductive oxide film ECO extending on the surrounding walls may electrically connect adjacent conductive oxide film ECO, causing a short. Therefore, the combination of the acknowledged art Ishii would produce an inoperative combination. For at least this reason, Applicant submits that the rejection of claim 1 is misplaced and should be withdrawn.

Claim 1 is independent claims, from which claims 2-7 respectively depend. Applicant asserts that claims 1 is patentable for the reasons discussed above, and therefore for at least the same reasons claims 2-7 are patentable.

As a separate and independent basis for the patentability of the claims, Applicant respectfully submits that the Office Action has failed to cite a proper suggestion or motivation for combining the three references. In combining Ishii with the acknowledged art, the Office Action stated only that it would have been obvious ““to sufficiently obviate the occurrence of the electrolytic corrosion” (Office Action, p. 4). The Office Action, however, doesn’t state or even allege what those reasons may be. As such, the rejection is deficient.

It is well-settled law that in order to properly support an obviousness rejection under 35 U.S.C. § 103, there must have been some teaching in the prior art to suggest to one skilled in the art that the claimed invention would have been obvious. *W. L. Gore & Associates, Inc. v. Garlock Thomas, Inc.*, 721 F.2d 1540, 1551 (Fed. Cir. 1983). More significantly,

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"The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this [invention] should be carried out and would have a reasonable likelihood of success, viewed in light of the prior art. ..." Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure... In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill in the art is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention."

(*Emphasis added.*) In re Dow Chemical Company, 837 F.2d 469, 473 (Fed. Cir. 1988).

In this regard, Applicant notes that there must not only be a suggestion to combine the functional or operational aspects of the combined references, but that the Federal Circuit also requires the prior art to suggest both the combination of elements and the structure resulting from the combination. *Stiftung v. Renishaw PLC*, 945 Fed.2d 1173 (Fed. Cir. 1991). Therefore, in order to sustain an obviousness rejection based upon a combination of any two or more prior art references, the prior art must properly suggest the desirability of combining the particular elements to derive an interconnect structure as claimed by the Applicant.

When an obviousness determination is based on multiple prior art references, there must be a showing of some "teaching, suggestion, or reason" to combine the references. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) (also noting that the "absence of such a suggestion to combine is dispositive in an obviousness determination").

Evidence of a suggestion, teaching, or motivation to combine prior art references may flow, inter alia, from the references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. See *In re Dembiczak*, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Although a reference need not expressly teach that the disclosure contained therein should be combined with another, the showing of combinability, in

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whatever form, must nevertheless be "clear and particular." *Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617.

If there was no motivation or suggestion to combine selective teachings from multiple prior art references, one of ordinary skill in the art would not have viewed the present invention as obvious. *See In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *Gambro Lundia AB*, 110 F.3d at 1579, 42 USPQ2d at 1383 ("The absence of such a suggestion to combine is dispositive in an obviousness determination.").

Significantly, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. *Winner Int'l Royalty Corp. v. Wang*, No 98-1553 (Fed. Cir. January 27, 2000).

Although the suggestion to combine references may flow from the nature of the problem, see *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed.Cir.1996), "[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness," *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 880, 45 USPQ2d 1977, 1981 (Fed.Cir.1998). Therefore, "[w]hen determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.' " *In re Beattie*, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed.Cir.1992) (quoting *Lindemann*, 730 F.2d at 1462, 221 USPQ at 488).

Simply stated, the alleged motivation of "to sufficiently obviate the occurrence of the electrolytic corrosion" is clearly improper in view of the above-discussed Federal Circuit

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precedent. For at least this additional reason the rejection of independent claim 1 (and dependent claims 2-7) is misplaced and should be withdrawn.

Newly added claims

New claims 14-19 are added in this response, and embody features that are neither taught nor suggested in the cited art of record.

Cited art of Record

The cited art of record has been considered and is not believed to impact the patentability of the presently pending claims.

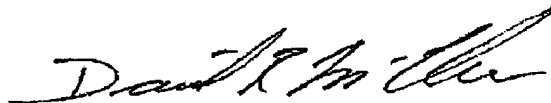
Conclusion

The applicant believes that the application is now in condition for allowance and respectfully requests so.

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No fee is believed to be due in connection with this amendment and response. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to Deposit Account No. 20-0778.

Respectfully submitted,



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